

Chapter 8

Strategies to Promote the Orderly Development of Water

This chapter identifies and explains strategies to promote the orderly development of water in the Clark Fork basin, the second of the three specific tasks set out for the management plan in HB 397. Before considering the strategies, the term “orderly development of water” is defined and the existing activities to promote orderly development are reviewed

What Is Meant by Orderly Development of Water?

Orderly development of water means a process to quantify physically available water and to provide for its long-term, sustainable use by the various competing existing and futures uses.

What is Presently Being Done to Promote the Orderly Development of Water?

Present activities can be categorized in terms of regulatory, planning and management, and research and education actions.

Regulatory Actions

Prior Appropriation Doctrine - The primary existing means of promoting the orderly development of surface and ground water is Montana’s use of the prior appropriation doctrine, the “First in time, first in use” legal framework discussed in Chapter 4. It is primary because all water users and uses are subject to it. The framework confers a right to use water, and thereby regulates who may use water, the amount that may be used, when it may be used, and how and where it may be used. The water right system allocates water, which is a finite resource, among competing users and uses.

Basin Closures - In large areas of the Clark Fork, the state and/or local water users have determined that, for all practical purposes, except during periods of peak run-off, all of the surface water is allocated to existing water rights holders. These areas, which include the basin above Milltown Dam, the Bitterroot sub-basin, and several smaller streams, have been closed, which means that no additional surface water rights may be acquired for most uses. The closures do allow exemptions for new rights for beneficial uses such as the storage of peak run-off flows, stock watering, domestic use, and expansion of existing hydropower generation.

Reallocations - In addition to the prior appropriation legal framework, which regulates how rights may be changed, surface water developments can now be based on the purchase or lease of existing water rights or the purchase of stored water. Montana has a long but not well-known history of reallocation of water through market activities. Montana statutes now provide for the exchange and reallocation of water on both a permanent and temporary basis for both consumptive and instream uses. These changes are limited by historic use and practices and are conditioned to mitigate third party affects.

Adjudication - As discussed in Chapter 4, the state is conducting two processes that affect water rights and therefore the orderly development of water in the Clark Fork Basin - the statewide water rights adjudication and compact negotiations with the Confederated Salish and Kootenai Tribes and the USFS. The adjudication process will clarify the priority date, amount, and other specifics of individual water rights and their relationship to all other basin water rights. The compact negotiations will quantify the tribal rights and federal reserved rights in the basin.

Other Regulatory Programs and Activities – Other federal, state, and local entities also directly or indirectly regulate the basin’s waters. EPA water treatment standards are causing a shift from surface to groundwater for municipal water supplies. Federal standards have mandated use of low-flush toilets and set energy/water conservation efficiency levels for appliances such as refrigerators and washing machines. FERC, the U.S. Fish and Wildlife Service, EPA, the Northwest Power and Conservation Council (NWPCC), and federal courts have acted to regulate the operation of hydroelectric projects in the basin, significantly affecting use of storage and stream flows to protect aquatic resources. FERC has included fish flow requirements in the hydropower licenses of the basin’s privately owned dams, including Noxon Rapids, Thompson Falls, and Kerr dams. NWPCC has established flow and operating requirements for Hungry Horse Dam, a federal hydropower project. A federal District Court has ruled that the Confederated Salish and Kootenai Tribes have a “colorable” claim to instream flows rights on their reservation. DEQ reviews subdivision applications to require that developers demonstrate the availability of water.

State and county bodies also regulate water quality. DEQ sets and enforces water quality standards for Montana water bodies. Some basin counties have established water quality districts to protect, preserve, and improve surface and groundwater water quality. The Flathead Basin Commission, a watershed group focused on Flathead Lake, has established a Total Maximum Daily Load (TMDL) limit for the discharge of nutrients into the lake. Another collaborative group, the Tri-State Implementation Council, involving agencies and other interests from Montana, Idaho, and Washington, has established a nutrient TMDL for the mainstem of the Clark Fork River. The TMDL programs do not explicitly address stream flow, but do consider flow indirectly in calculating pollution loading.

Planning and Management Processes

Water rights holders and interests in the basin are working together in collaborative watershed planning groups and through conservation districts, water user associations, and irrigation districts. These groups facilitate water data collection, maintenance and construction of water storage and conveyance facilities, drought planning, water quality improvement and riparian area restoration projects, dispute resolution, and water education. Irrigation districts are also reviewing subdivision applications for potential impacts on the irrigation system. The USFS is revising forest plans for the Lolo, Bitterroot, and Flathead national forests. (In Colorado, USFS management is beginning to consider vegetation management to produce water. If successful, this strategy may be applied in Montana forests as well.) Counties and cities are managing floodplains.

Finally, individual water users are also taking actions and affecting the orderly development of water: Basin irrigators are generally moving to increase the efficiency of irrigation systems, measured in terms of the amount of water used; more water diversions are being measured; and individuals are filing law suits to protect their water rights and related investments.

Research and Education Actions

Several studies have been made of the hydrology, water quality, and fishery resources of the basin as a whole and of individual sub-basins. The most recent evaluation of collective basin conditions is the *Clark Fork Basin Project Status Report and Action Plan* (The Johnson Report) by Howard E. Johnson and Carole L. Schmidt, which was issued by the Governor’s Office in 1988. Also in 1988, the State of Montana in partnership with basin hydropower utilities funded a study entitled *Effects of Future Irrigation Development on Hydroelectric Generation in the Clark Fork Basin*. This study was written by A.B. Cunningham and others, and published by Montana State University in 1988.

During the last 10 years, much has been learned about sub-basin or sub-region water resources. For example, the Montana Ground Water Characterization and Ground Water Monitoring Programs operated by the Montana Bureau of Mines and Geology (MBMG) have collected and analyzed regional groundwater data. Although reports summarizing this information have not been published, map interpretive data, groundwater data, and well development data are all available publicly through the Ground Water Information Center. Sub-basin specific analyses of water use, diversion, and return flows have been conducted in the Flint Creek (*Flint Creek Return Flow Study*, MBMG Open File Report 364, by Voeller and Waren DNRC, 1997) and North Fork of the Blackfoot drainages (*North Fork Blackfoot River Hydrologic Study* - DNRC Report WR-3.C.2.NFB Roberts and Waren, DNRC 2001).

The following table lists ongoing water related educational programs. The information it contains was supplied by the Montana Water Course.

Table 8-1, Montana Water Education Programs

Sponsoring Entity	Program	Target Area
Montana Watercourse		Statewide
K-12 programs:	WET Training workshops for teachers	
	Watershed tours for teachers	
	Facilitator network to train and do presentations	
	Volunteer Monitoring in schools	
	Clark Fork Teaching Trunk	Lower C. FK
	Custom school/watershed projects	
	Water and Watershed festivals	
	Know Your	
Community Programs:	Watershed	
	Water Rights Training and Workshops	
	Volunteer Monitoring	
	Small Acreage Landowners (ground water, septic, floodplain, water rights, etc.)	
	Wetland Stewardship	
	Support for new watershed groups	
	Custom workshops and tours	
Watershed Education Network - Deb Fassnaught		Missoula/Upper Clark Fork)
	Volunteer monitoring in schools	
	Local educational tools	
Boone and Crockett - Adele Stenson		Front Range
	Water and Critters	
	School-based water monitoring	
	Variety of resource based trainings	
Conservation Districts Education Coordinator Julie Hawn, Flathead CD		
	Envirothon (high school competition, including water education)	
	<i>Conservation Days</i>	
	Customized and local/regional programs	(Example: monitoring in Red Water at Circle)

		The Clark Fork Watershed Education Program
	Landowner series	
	Realtor workshops water related topics	(Green Mountain, Missoula, Gallatin)
Watershed Groups:		
	Watershed Tours	
	Newsletters and communications	
	Realtor workshops	
	School-watershed connections	(Example: Blackfoot, Sun)
Yellowstone River Watch:		
Teachers/Student	Yellowstone water quality monitoring	
Jason Project: MSU based		
K-12 technology project	featuring water this year.	
Montana DFW&P: Conservation Education Programs		
	Project Wild	
	Conservation and angling education	
DNRC CARD (Dave Martin)		
	Small acreage landowners	
	Rolling River Trailers	
Clark Fork		
Allen Bone, Joe Griffin	Upper Clark Fork school stuff	

Options for the Orderly Development of Water

Regulatory Options

Complete the Adjudication - The state-wide water rights adjudication began with the filing of all pre-1973 water rights in 1983, and no one can predict with certainty when it might be completed. Completing the adjudication, including the settlement of all reserved rights, is a critical future option for providing for the orderly development of water. While the adjudication does not determine either the legal or physical availability of water for future appropriations, without completing it, full knowledge of water rights cannot exist, and additional water development may be at risk to future adjudicatory rulings by the Water Court, particularly in the Flathead and Blackfoot sub-basins in which preliminary decrees have not been issued.

Create Specialized Water Courts - Water administration issues in Montana are now divided among four District Court judges. Because these judges must also continue to hear other criminal and civil cases, water issues must compete for their time, attention, and expertise. To improve water administration, the state should consider the costs and benefits of establishing specialized water courts to oversee water administration.

Improve DNRC Water Permitting - Orderly development should also be promoted by requiring DNRC to evaluate cumulative impacts before granting surface or groundwater permits. A single water development may not adversely affect existing water users, but a number of such

developments taken together might. This new requirement would ensure that future development does not harm existing and other potential new users.

Recognize Water as a Unitary Resource - Although water law acknowledges that water is a unitary resource, in practice surface and groundwater are often regulated and managed as if they are separate resources. Conforming practice to the unitary standard would facilitate quantification of physically available water and provide for its use by the various competing existing and future uses. For example, wells that withdraw less than 35 gallons per minute (gpm) and 10 acre-feet per annum are exempt from permitting requirements. This exemption would be appropriate if we could be sure that additional development of smaller wells would be unlikely to affect groundwater availability. As domestic use continues to increase, however, the number of wells may become significant. Sub-division developers also sometimes forgo opportunities for community wells that would be more efficient and cost-effective than individual wells to avoid groundwater permit requirements. Amending the 35 gpm/10 acre-feet exemption to require a permit for groundwater wells that are developed as part of a common project, such as a subdivision, would enable the state to ensure that the wells do not affect other groundwater users.

Two additional actions could also help ensure that continued groundwater development does not occur at the expense of existing surface water right holders. First, a legally defensible definition of a hydrologic connection between surface and groundwater should be developed, and second, applicants for a groundwater permit should be required to provide information demonstrating the nature of the surface-groundwater connection.

Allow and Encourage Water Leasing - Finally, given the uncertainty that new water right permits, which would be the most junior in the basin, would actually allow significant use of water, new water developments might be allowed through water leases as well as new permits, assuming leaseable water can be identified. A lease for a long enough period might actually be more advantageous than a junior water right if the lease guaranteed the delivery of “wet water.”

Explore Opportunities for Groundwater Augmentation - Unlike many western states, with the exception of the upper Clark Fork River sub-basin, Montana does not operate programs of groundwater augmentation to enhance basin water supplies or recharge groundwater resources.¹ Studies of the hydrology of many of the state’s intermontane basins have identified extensive artificial recharge resulting from existing water use practices. Typically, the recharge is not an explicit management objective.

The use of groundwater as “nonstructural storage” is not formally acknowledged in Montana, nor can it be protected through water rights. Montana should examine this potential management tool and develop appropriate rules for its authorization and management. The rules should address site specific impacts to water quality and the natural and human environment. The evaluation and inventory of existing recharge areas and identification of those with high storage potential could be included in the MBMG Ground Water Assessment Program. Priority should be given to developing some type of protected augmentation right for aquifers on which water users depend for late season flows. Using the state’s administrative “Change of Water Right Provisions” or a new permit for the storage of high spring flows, water users might be compensated for earlier irrigation using flood systems or for not converting from flood to sprinkler irrigation to ensure aquifer recharge.

¹ The upper Clark Fork sub-basin is closed to the issuance of most new surface water rights. However, Montana statutes specifically allow new surface water rights if the surface water use is augmented with groundwater to avoid a net depletion of surface water (see MCA §85-2-336(3)).

Administration of groundwater storage and augmentation creates several management challenges, including keeping track of induced water and natural recharge in the aquifer, and measuring and controlling the timing and amount of releases of storage water. However, multi-purpose water management entities, such as a conservancy district, might be ideally suited to develop and manage a sub-basin augmentation project.

The Legislature and Water - The Legislative Water Policy Committee should be re-established to increase the focus on water issues and water education for legislators, and an interim committee should be appointed to consider the ongoing water rights adjudication.

Management Options

Montana law allows the creation of single- and multi-purpose organizations such as conservancy or irrigation districts that can manage or participate in the management of water quantity. Such organizations could be created when they would be effective at the scale at which the management would occur. For example, basin counties might initiate creation of a conservancy district to focus on water development, conservation, and/or storage. They could supplement state jurisdiction in water rights enforcement.²

Individual and water user organizations could provide for water use by existing and future users by:

- Examining options for increasing water use through use of high spring flows and snow melt (rain on snow events);
- Increasing water storage;
- Actively managing return flows;
- Continuing to use water leasing and water marketing as management tools; and
- Protecting and rehabilitating wetlands through active floodplain and wetland management, bank storage, etc.

Cities and counties could enhance orderly water development by providing incentives for centralized and/or decentralized water supply and sewage systems instead of individual wells and septic systems.

Research and Education Options

As was mentioned in Chapter 3 and discussed in Chapter 6, use of additional surface water in the basin may be constrained by the hydropower water rights at the hydropower facilities in the lower basin. Development of additional water supplies, particularly for municipal and residential uses, is likely to depend on groundwater. Through the research conducted by MBMG, much is being learned about groundwater in Montana and in the Clark Fork basin. However, additional research is needed to evaluate the availability of the basin's groundwater, its recharge rate, and groundwater-surface water interrelationships. Additional research is also needed to more accurately define sub-basin hydrology and water, biological, and economic relationships. Other specific research needs include studying water availability to identify places of stress and the impacts of sewer system installations on water quality.

While not a new activity, continuing ongoing monitoring by state and federal agencies of stream flow, groundwater, and snow pack is critical to both research and water management. Continued funding for the MBMG Ground Water Program, the U.S. Geologic Survey cooperative stream flow

² For more information on conservancy districts, see "Conservancy District An Option for the Management of Georgetown Lake Dam", released by the Upper Clark Fork River Basin Steering Committee on February 3, 2004.

network, and the USDA Natural Resources Conservation Service's Snow Survey program is particularly crucial. Also, sub-basin hydrologic research carried out by state agencies (DNRC, MFWP, and DEQ), the University of Montana and Montana State University, and others should be supported. Currently much of this research is funded with "soft money"—grants from federal, state or private sources. Often "studies" are not well supported or are of a lesser priority ranking in state grant programs. Studies that provide appropriately designed, coordinated, and locally supported analyses will continue to be needed to define and monitor basin water resource conditions.

Education is also needed both in public school curricula and in the Montana legislature.